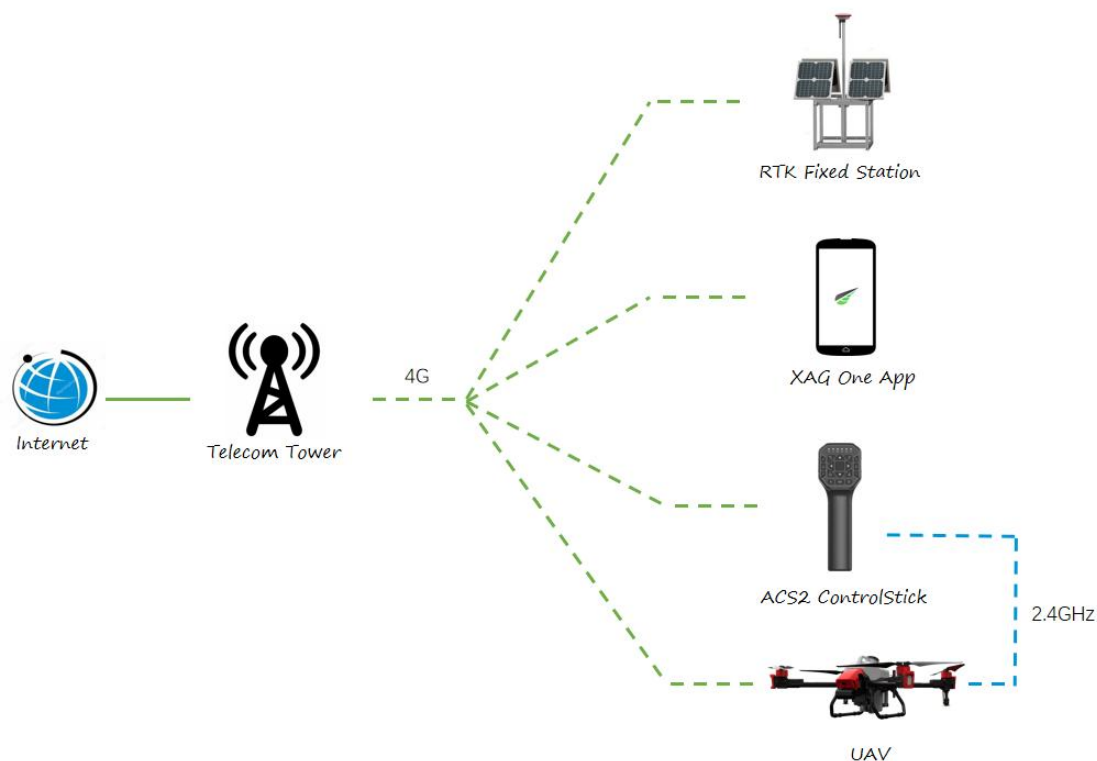# UAV Network and Infrastructures

For XAG agriculture UAV (model 2021 above), the essential components of UAV-based network and infrastructures are UAV, ACS2 ControlStick, RTK station and XAG One App running on smartphone.

To optimize the UAV performance, XAG provides the individual UAV-infrastructures communication solution for the scenarios of good 4G network, poor 4G network and no 4G network.

1. Good 4G network

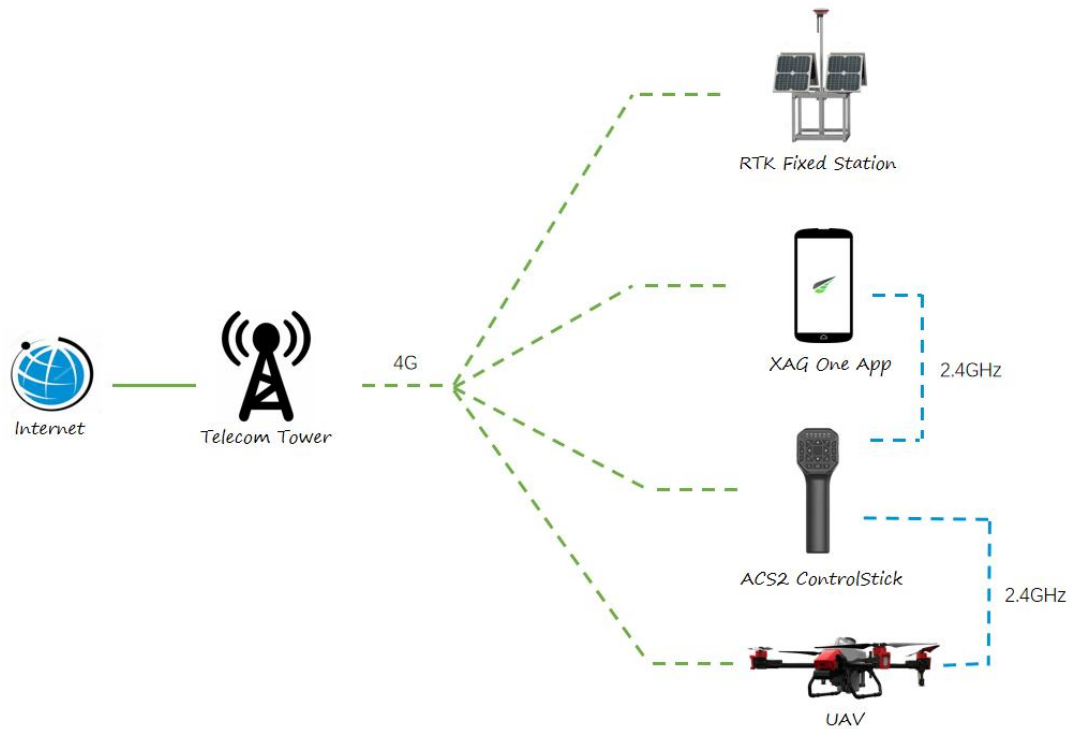   In this scenario, 4G coverage and signal strength are good.

   All the components are access the internet and connected.

2. Poor 4G network

   In this scenario, All the components are access the internet and connected. However, 4G coverage is insufficient and signal strength are weak. The 4G network is not fully reliable, thus the local network communication (WIFI, 2.4G) invokes. ACS2 ControlStick is the WIFI hotspot that connects both smartphone and UAV. This path allows the data and commands transmit between smartphone and UAV when 4G network is weak.

RTK Fixed Station

XAG One App

2.4GHz

4G

Internet

Telecom Tower

ACS2 ControlStick

2.4GHz

UAV

3. No 4G Network

Local network terminal, abbr, LNT, works as a local IOT server that enables the wireless local area network. LNT can be the substitution of the cloud Server. It allows the communication among all the remote devices without the access of Internet, LNT and its IOT devices must be properly upgraded and configured before use.

RTK Portable Station

XAG One App

2.4GHz

Internet

local network Terminal

ACS2 ControlStick

UAV